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# CONOPHYTUM







# Conophytum

by *Fred Dortort*

It's mid-summer in California, and though some conophytums are beginning to wake up, most are still sound asleep. At this very moment, though, in their native habitat at the southern end of Africa, many are in full growth. Less well known to the general public than its distant cousin, lithops, the genus *Conophytum* just might be the single most interesting of the multitude of genera in the family *Mesembryanthemaceae*. Its range is smaller than that of lithops, but in both numbers of species (as many as 300 described, something more than 100 currently recognized) and variety of form, *Conophytum* outshines its stone-like cousins. Although conophytums share the lithops format of individual heads consisting of pair of conjoined leaves, the species range from relatively large plants with individual heads up to a few inches tall and wide, to vigorous clumpers that produce dense clusters up to a foot across composed of a hundred heads or more, to miniature single-bodied species whose largest measurements hardly exceed an eighth of an inch. Unparalleled in their ability to survive on next to nothing,



*Conophytum* includes some of the strangest of all succulent plants, indeed some of the strangest living things on Earth.

The classic conophytum shape is like a cluster of tiny, speckled grapes, but others look like flattened, fuzzy buttons or miniature high-peaked saddles, strange little semi-spherical blobs, or even purple cocktail onions. Almost entirely native to those parts of South Africa and

Namibia where the little rain that falls falls in winter, conophytums flourish in a wide variety of microhabitats, from tiny mossy crevices high in the mountains to bone dry desert flats where they are fully exposed to the most blazing sun and intense aridity imaginable.

An individual conophytum, whether bilobed, globular, or just plain peculiar, consists of a pair of tightly fused, highly succulent leaves known as plant bodies. Generally, a small slit in the center of the plant marks the spot where the leaves are joined and where the often colorful, sometimes highly fragrant, flowers emerge. Unlike lithops and most other “mimicry” mesembs, however, the edges where the two leaves meet is usually invisible, and in most species the joined plant bodies look like a single entity. In many conophytums the plants bodies are highly decorated, patterned with red or purple dots and lines; they may have transparent windows on top, or be entirely red, purple, or bronze in color.







Although conophytums are considered “winter” growers, the exact definition of when “winter” starts varies from species to species, in some occurring rather



confusingly as early as May or June (Steven Hammer has observed his plants waking up ever earlier over the last several years). Most conophytums, however, begin to grow between September and November, and species generally remain in their growing phase until early spring. Unlike lithops, which flower at the end of their growth cycle, conophytums flower as they start to grow; the sudden appearance of flowers is often the best indication that the time to begin watering has arrived. The busting out of flower buds from barely visible fissures in what may seem like small, shapeless heaps of dried paper never fails to evoke a kind of wonder in those who can recognize this renewal for what it is.

*C. marginatum* var. *haramoepense*



Several months later, when new pairs of leaves become visible inside the split at the top of the plant, or the surface of the plant starts looking tired, perhaps whitish or somewhat stretched, watering should cease. The dry resting period for the plants can last as long as six or seven months, and many of the smaller bodied species shrivel so much during this time that they seem quite dead. During this resting state occasional light misting doesn't hurt, but, as with lithops, the goal is to let the old plant bodies dry up so that they won't block the free emergence of the new ones. When the new growth seems ready to take over more frequent mistings can help, sometimes as often as every day or two if the light is strong enough; the plants, however, must never remain wet. When in full growth the plants can take heavier watering at intervals from as often as once a week to perhaps once every other





week. If plants become extremely turgid watering should be tapered off, as too much water will cause the plant bodies to rupture.

Generally conophytums do not need quite as much light as lithops, although for most indoor gardeners the difference is moot, and under typical home growing situations the plants will benefit from as much light as possible, with very light shade recommended during their dormant periods. A few of the species, the bilobed ones in particular, will even survive outdoors in very well drained soil. Our winter rains coincide with their natural growing seasons, followed by more or less complete drought until their new growths are bursting forth and the old ones shriveled and desiccated. A little bit of frost won't hurt them, though extensive periods of sub-



freezing, wet days could very well prove fatal. Those are the generalities of conophytum style and culture, now to some of the specific groups within the genus.

In addition to being the best candidates for outdoor growing, the bilobed species include many of the easiest types for cultivation. Older books list a great number of species within this sub-group of conophytums, but many are now considered straightforward. Though the bilobes are confined to the arid

northwestern regions of South Africa (extending just a bit into Namibia as well), Namaqualand, the Richtersveld and that area east of the coastal mountains called Bushmanland, they nonetheless can withstand substantial amounts of water and generally resist rotting. *C. bilobum* extends over most of this area; its large range



and many variant forms gave rise to its enormous number of now invalid synonyms. A few of these forms, though not taxonomically significant, are worth mentioning because of their horticultural qualities. The form once known as *C. nelianum* may be the hardiest of all these variants, clumping quite readily and well adapted both to a windowsill or a sunny rocky garden. *C. "elishae"*, with less prominent lobes, also grows easily and multiplies fairly rapidly. *C. bilobum* subspecies *altum* gradually forms clusters of proportionately long stems, each surprisingly surmounted by a bilobed conophytum. Some forms have their edges outlined in red; others are white-skinned, with an almost glazed look and feel to them. In the wild I've seen a few plants with three-lobed bodies; to me at least they look deformed rather than rare and exotic, but someone else might consider them a horticultural treasure. The other bilobes are much less widespread, and less common in cultivation as well. *C. frutescens* grows even taller than *C. bilobum* ssp. *altum*, ending up as a mass of bilobed plant bodies on the top of foot and a half tall stems.

Less easy to cultivate, the bilobed *C. regale* has a strange bubble-like structure surrounding its central fissure, and *C. herreanthus*, once given its







own genus (as *Herreanthus meyeri*) is covered with a deeply glaucous (blue-gray) epidermis, and makes tight, low-growing clusters as the years go by. Some of the other species related to these deeply bilobed plants are much less prominently

lobed. Most commonly seen (because of its ease of cultivation), *C. meyeri* in some forms barely looks lobed at all. It quickly grows into good sized clumps of rounded plant bodies, each considerably smaller than the other bilobed species I've mentioned. Other more-or-less bilobed species have slightly pyramidal lobes rather than rounded ones, but in some of these the presence of discernible lobes becomes somewhat problematic.

These barely bilobed plants might as well provide the introduction to the very large number of round conophytum species, with shapes ranging from almost perfect spheres, to slightly pointed, to definitely concave, to quite squat. The plants may be plain green, or have bright red markings around their central fissures, like



lipstick around a mouth, or they be slightly speckled or arrayed with definite patterns of dots and stripes that range from faint to vividly bright. There are dozens of conophytums with these characteristics, but I'll describe just a few of the most distinct, as well as some of the more commonly encountered ones.



Among the many clustering, small bodied, more-or-less spherical species, *C. uviforme*), in habitat looks like dense clusters of grapes (befitting its name — grape shaped), somehow mysteriously transported to narrow crevices among boulders in the middle of the desert. These clustering little spheres may be plain green, or grayish, or tinged with purple, their surfaces often (but not always) marked with a light patterning of dots. Other species with a generally similar appearance include the very widespread *C. truncatum* (the easternmost species), *C. bolusiaae*, in nature a rare endemic, but very easy to grow, and the pale-skinned, usually lightly speckled *C. flavum*. I've seen *C. saxetanum*, one of the smallest bodied and most rapidly multiplying species growing in the Richtersveld along boulders in what seems to be no more than an eighth of an inch of dusty







grit over solid rock — this is an area of blazing sunlight and intense aridity, with perhaps two to four inches of rain a year, softened only by occasional sea-fogs that penetrate inland. Similar in general shape and form, but more strikingly decorated with marking of dark red, purple or brown lines and geometrically arranged dots, are species such as *Conophytum obcordellum* (one of the easiest to grow and perhaps the best for windowsill cultivation), and *C. minisculum*, appropriately tiny-bodied, entirely brilliant purple, or marked with mosaic-like designs of curving dark-green lines over a white-green body, as well as the similar, but smaller and rarer *C. swanepoelianum*, and the descriptively named *C. rubrolineatum*. *C. obcordellum* occurs northwest of Cape Town, along the coast,







but not as far north as the harsh lands of Namaqualand and the Richtersveld. It shares its somewhat better watered habitat with many other succulents: crassulas, adromischus, pelargoniums, euphorbias, and many bulbs, and this more benign environment explains its relative ease of cultivation.

There are many more “sphaeroid” species of conophytum worth mentioning. I’ll discuss some of them next month, and also cover some of the really different members of the genus along with more specific details about cultivation.







*C. rubrolineatum*



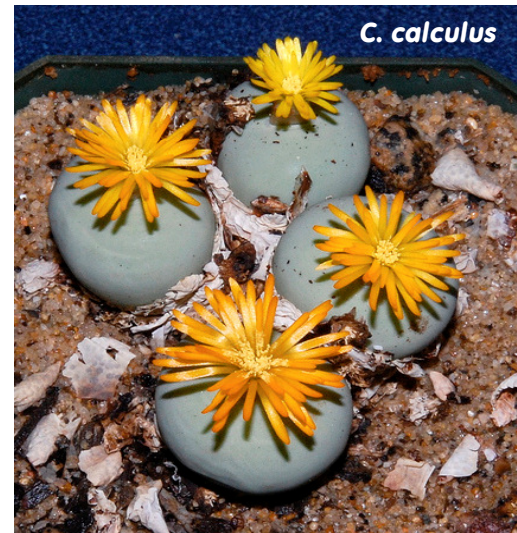
*C. wettsteinii*



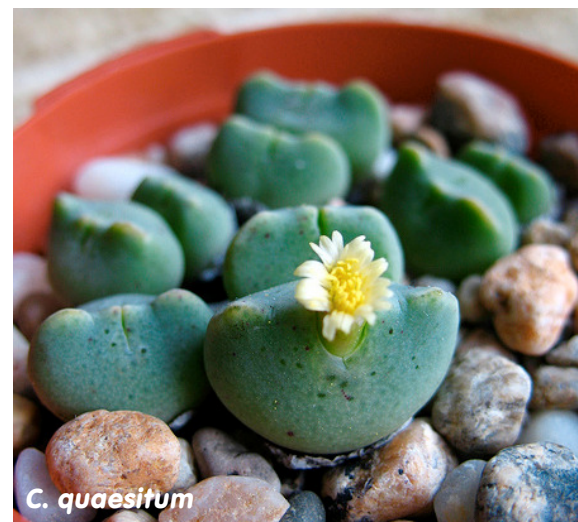
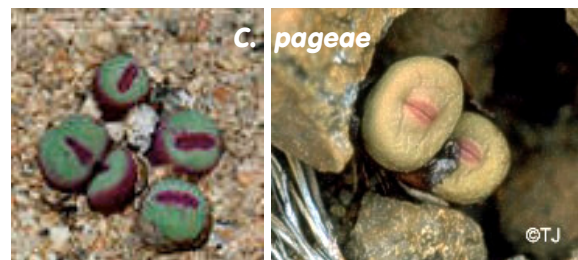
*C. minutum v. pearsonii*

I'll start by continuing last month's enumeration of some "typical" conophytum mini-spheres. Some of these species have somewhat larger or squatter plants, such as *C. wettsteinii*, disc-shaped and somewhat flattened with plant bodies over an inch across. It forms odd, almost fake looking clumps on bare rock in full sun, but it's one of the easier and more reliable species in cultivation. *C. minutum*, in particular its variety *pearsonii*, is also a not-so-minute conophytum, that makes tightly packed, geometrical clusters of plant bodies, a sphere formed of spheres. Its variety *minutum* generally is much smaller, with plant bodies averaging little more than half the size of its cousin. *C. gratum*, another fairly large-bodied species that eventually becomes quite leggy, also is an easy species to grow — I've had one out in the ground for a few years now. The very round-bodied *C. calculus*, immediately distinguishable by its tough, thick, whitish epidermis, also





forms dense, sphere-like clusters, composed of fewer plant bodies than those made by *C. minutum* var. *pearsonii*, which shares its northern Namaqualand quartzfield habitat, both species thriving in full sun. Several of these sphere-plants, *C. pageae* among them, may have their central fissures surrounded by bright red markings (“lipstick conophytums”). Some of these lipstick plants have a somewhat bilobed shape, such as *C. tantillum*, or forms of *C. quaesitum*, while other forms of these species may seek out crevices where they grow in partial to quite deep shade. Of course shade in a blazing desert is a relative thing! To name a few others, *C. roodiae* is a slightly bilobed species that makes its home of the crumbling granite domes southeast of Springbok, where its clumps tend to be very linear, filling straight little crevices in the rock. I’ve also seen it growing in a perfect circle, along the perimeters of a sharp-edged, circular depression that looked almost like a pot-hole of the type taken advantage of by California Indians. *Conophytum fulleri* is a basically green plant,







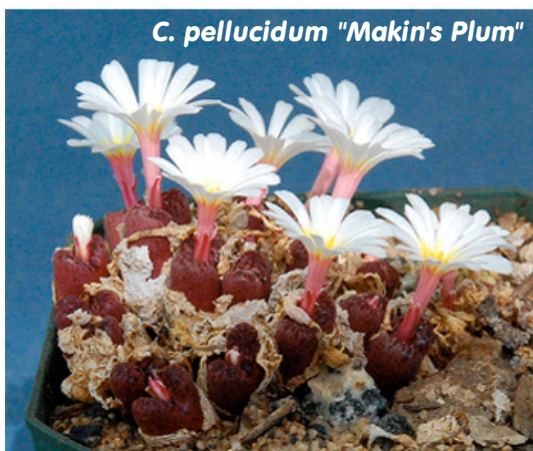
with a body covered with tiny blister-like depressions. It lives to the east, in Bushmanland, which, theoretically lies in a summer rainfall region. The first one I saw, in late winter (August), growing along the underside of a small quartz boulder, was so shriveled that at first I thought it was an odd lichen, with strangely rounded fruiting bodies. Also an eastern species, but from much farther to the south, *C. ficiforme* has small plant bodies marked with branching and forking lines. It can make large, many headed colonies on bare rocks, and in such conditions, the plants become completely red, looking like little berries.



A few of the green spheres come with either fuzzy (*C. ernstii*) or distinctly hairy (*C. stephanii*) surfaces, and then there are a number of very different looking plants that also make up part of the genus.







Species such as *C. maughanii* and its relatives look like spherically organized blobs of translucent jelly, ranging from green to bright red, with a central fissure reduced too nothing more than a smallish dot. These also are quartzfield inhabitants, but several somewhat similar species, including *Conophytum pellucidum* and *C. lithopsoides*, with heavily patterned and brightly colored translucent bodies and more-or-less transparent windows on their flat tops, often live at fairly high altitudes, sometimes under almost alpine conditions. I've seen some of these in little rocky depressions, half-submerged from recent rains, and with a coating of ice all around them.

Farther east, mostly in Bushmanland, in the rain shadow beyond the coastal mountains (more of a fog shadow — there isn't enough rain really to shut out), even more translucent species have made a home. These used to be considered a separate genus, *Ophthalmophyllum*, and they generally look like they're formed from glass,

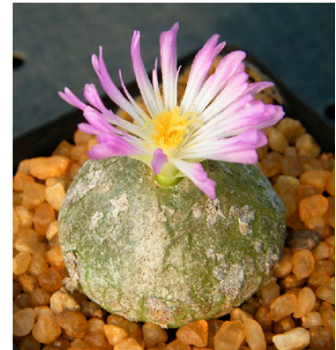




ranging in color from coke-bottle green to brown, to quite reddish. Some of these plants remain solitary, others clump quite readily; some are touchy in cultivation, some grow easily. They all resemble each other and are easy to recognize as a group. They include species such as *C. friedrichiae*, *C. limpidum*, the slightly fuzzy *C. pubescens*, and the clump forming *C. praesectum*.

Although I'm only giving a quick overview of the genus, leaving out far more than I'm including, I should mention a few of the most bizarre species, several of them fairly recently discovered. These are plants that occur over ridiculously small habitats, sometimes not more than an acre or two (out of the entire world), but which may fill these little patches of quartz pebbled earth so densely as to form a solid carpet of flowers at blooming time. The most famous of these (again, a relative term), is *Conophytum burgeri*. This species, colored bright purple, and covered with permanent layers of silver sheathing made up of old, shriveled plant bodies of former years, looks something like a cocktail onion. It's widest at its base, and tapers upward (it was compared to Mt. Fujiyama, even named after that mountains until it was determined that it actually was a conophytum), never





clumps and grows very slowly. Normally, it receives rain in May and June (equivalent to November and December in the northern hemisphere). When I saw it in habitat several years ago, in late August, it had rained four inches a couple of weekends earlier — this was twice the normal annual rain, but then it hadn't rained at all for the previous two years. Despite this, the plants had flowered on schedule each of the years, as if somehow, there was no connection at all between them and their environment. *C. ratum*, growing about twenty miles away, and also confined to a flat patch of quartz pebbles an acre or two in size, is a more normal plant, green, rounded, and similar in size (both are well over an inch in diameter — good sized for a conophytum). Unlike *C. burgeri*, which pokes its conical head above the ground level, *C. ratum* is at most flush with the





ground, often living in a slight depression of its own making. *C. achabense*, one of the very strangest, is a tiny plant, solitary, less than a quarter inch across, tapering to a little narrow cylinder on top, and living entirely below the quartz pebble surface of its improbable habitat. It puts out its bright purple, proportionately huge flowers above ground level, and that's how it was discovered in the late 1980s. Of course, the ground where these bizarre species live is composed of translucent quartz, so, in effect, the plants live in their own natural greenhouses.

Although odd, highly specialized succulents such as these rarely are cultivated for their flowers, in addition to their peculiar shapes and habits,







conophytums also offer a surprisingly varied bonus at bloom time. Many produce proportionately large flowers, often at least as large as the fused pair of plant bodies from which they emerge, typically colored brightly in yellow or purple, sometimes other colors. Others put out small, pale flowers, which, when night falls, turn out to be highly fragrant with a wide variety of spicy scents, depending on species. The night-scented ones, in particular, flowering from some of the smaller species, can provide an almost startling surprise.

Conophytums, although all considered to be “winter” growers, actually display quite a bit of diversity in their cultural needs, with the beginning of growth ranging from June to December. After the new growths have presented themselves to the outside world, the plants should receive regular water, about every two weeks, or even a bit more often. The easier species will benefit from this treatment for the duration of their growth cycle, until their current pair of plant bodies begins to look a bit stretched and old, at which time watering should cease. The touchier plants, such as members of the *C. pellucidum* group and the ex-opthalmophyllums, for example, should have their watering cut back, though



not eliminated, after the first month or two, as too frequent watering after this will result in plants splitting and bursting. As with most arid-growing succulents, above all, their soil should be very quick-draining. A few of the species, such as *C. obcordellum*, will benefit from a little organic substance in the soil mix, but many of the more specialized species do best with a mix very low in organic matter. The entirely organic, but non-interacting material known as coir (derived from coconut palms), also has gained quite a following over the last several years as a medium for conophytums and other mesembs.

Most conophytums will benefit, under our conditions, from maximum light when they're growing, but during their dormancy (when some of the plants shrivel almost into nonexistence) many will benefit from a slight degree of shade. Almost all species can handle some frost if they're protected from excess moisture, and as I mentioned, some of the bilobes, and even a few of the spherical species can survive outdoors in very well drained soil.

Although the specific needs of conophytums might make their cultivation seem daunting, in reality many are pretty easy to grow successfully, and their small size makes it possible to have a nice assortment contained on a windowsill. For the indoor grower, many are as easy, or easier than lithops, and there are so many to choose from that a person could have a very varied collection of succulent plants that consisted of nothing but members of this single genus.

